IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Rosalie A. Centeno Secretary

In the Application of Udo Emil Frank

Ser.No.: 10/702,219

Filed: November 5, 2003

For: MICROFOCUS X-RAY TUBE

Commissioner of Patents

Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

In accordance with 37 CFR § 1.56, Applicant wishes to call the attention of the Examiner to the following references:

1) US 3,584,219
2) GB 1 249 341
3) US 3,668,454
4) US 1,717,309
5) US 4,618,972
6) EP 0 083 198
7) US 5,729,583
8) US 4,159,437
9) JP 09082252
10) DE 662 408
11) EP 0 777 255

12) EP 0 292 055

13) DE 31 39 899

Reference 1 - 9 are in the English language and therefore need no further discussion as to their relevance.

Reference 10 discloses an invention which are Roentgen tubes, used especially for transillumination and recording, with a cone anode that is enclosed by the cathode and that transmits largely axially. The anode is a narrow cone with an apex angle of 30° or less. The cathode is arranged within a drum-shaped metal housing that encloses the anode cone on all sides, that acts a collector, and that has a radiation outlet window.

Reference 11 discloses an X-ray tube that has an electron source (1) for emission of electrons and an anode body (5) with a conical through-channel (9) for the electrons, whose inlet opening (17) which faces the electron source, is larger than its outlet opening (13). The channel is arranged and designed so that the electrons are scattered towards the outlet opening when incident at a small angle on a surface of the channel. A target element (6) is arranged after the outlet opening in the direction of flight of the electrons. X-rays are formed in the target when impacted by electrons (11).

Reference 12 discloses the invention relates to a fluorescence radiation source in which an anode which encloses a member is struck by electrons on its side which faces the member and in which the primary X-ray radiation generated in the anode generates fluorescence radiation in the member. The member is preferably arranged within an enclosing shield which keeps scattered electrons remote from the member.

Reference 13 discloses an X-ray tube that is suitable for providing in a small, easily accessible volume (120 mm<3>) a dose output of 10<4> R/s per kW of generator power.

The X-ray tube consists, apart from additional components, of two annular anodes and a cathode arrangement surrounding these in the form of a circle. In the interior of the annular anodes (two frustoconical surfaces touching in a circle) there is an opening which is easily accessible from outside and into which the material to be irradiated can be inserted. The arrangement enables optimisation of the following parameters: distance between irradiation chamber and anodes, direction of emission of the X-radiation (preferably into the irradiation chamber), large anode surfaces, large cooling surfaces, high disruptive strengths through field-free space. The tube can be applied in radiology, dosimetry, fluorescence analysis, radiation biology, pharmacy, chemistry.

Copies of the listed documents are submitted herewith along with the form PTO-1449.

It is respectfully requested that any fees required and not enclosed herewith or any shortages in any fees be charged to Deposit Account 02-1653.

Consideration of the foregoing in relation to this application is respectfully requested.

Respectfully submitted,

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Enclosures

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Complete if Known	
	Application Number	10/702,219
	Filing Date	November 5, 2003
	First Named Inventor	Udo Emil Frank
	Group Art Unit	
	Examiner Name	
	Attorney Docket No.	970/001

U. S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Patent Number Pub. Number	Issue Date Pub. Date	Patentee	Class	Subclass	Filing Date
	1	3,584,219	6/8/1971	Herglotz et al			1/30/1969
	3	3,668,454	6/6/1972	Shimura			3/9/1970
	4	1,717,309	6/11/1929	A. Bouwers			6/9/1925
	5	4,618,972	10/21/1986	Georgiou et al			9/7/1984
	7	5,729,583	3/17/1998	Tang et al			9/29/1995
	8	4,159,437	6/26/2979	Sahores			6/13/1977

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes	Translation No
	2	GB 1249341	13 Oct 1971	Great Britain			X	
	9	JP 09082252	28 Mar 1997	Japan			x	
	10	DE 662 408	16 Jun 1938	Germany			x	
	11	EP0777255	04 Jun 1997	Europe			X	
	12	EP0292055	23 Nov 1988	Europe			X	
	13	DE 3139899	21 Apr 1983	Germany			X	

OTHER PRIOR ART B NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	

Examiner		Date	